

REMARKS

This is in response to the non-final Official Action currently outstanding with regard to the above-identified application.

Claims 1-22 were pending in this application at the time of the issuance of the currently outstanding Official Action. By the foregoing Amendment, Claims 1, 10 and 21 have been amended. Also, Claims 2 and 14 have been canceled, without prejudice. No claims have been either added or withdrawn. Accordingly, upon the entry of the foregoing amendment, Claims 1, 3-13 and 15-22 as amended above will constitute the Claims under active prosecution in this application.

The Claims of this application as they will stand upon the entry of the foregoing Amendment are set forth above including appropriate status identifiers and indications of the amendments made as required by the Rules.

More particularly, in the currently outstanding Official Action the Examiner has:

1. Acknowledged Applicants' claim for foreign priority under 35 USC §119 (a)-(d) or (f), and confirmed the receipt of the required copies of the priority documents by the United States Patent and Trademark Office;
2. Indicated that the drawings as filed with this application on 20 June 2003 are accepted;
3. Acknowledged his consideration of the Information Disclosure Statement filed in this application by providing the Applicants with a copy of the Form PTO-1449 that accompanied that Statement duly signed, dated and initialed to confirm his consideration of the art listed therein;

4. Rejected Claim 1-4, 6-10, 12-16, and 18-22 under 35 USC §103(a) as being unpatentable over Inoue et al. (JP 62-166372) in view of Nakamura et al. (JP 07-270673) and Patten et al. (Pub. No. US 2002-0196473);
5. Rejected Claims 5 and 17 under 35 USC §103(a) as being unpatentable over Inoue et al in view of Nakamura et al. and Patten et al as applied to claims 3 and 15 above, and further in view of Nakazawa et al. (US 6,288,733);
6. Rejected Claim 11 under 37 USC §103(a) as being unpatentable over Inoue et al. in view of Nakamura et al. and Patten et al., as applied to claim 10 above, and further in view of Imakawa (US Patent No. 5,231,280).

No further comment regarding items 1-3 above is deemed to be required in these Remarks.

In addition, Applicants respectfully submit that the allowability of dependent Claims 5, 11 and 17 will be determined by the allowability of independent Claims 1 and 10 upon which they respectively either directly or indirectly depend. Accordingly, further detailed comment concerning items 5 and 6 above also is not deemed to be required in these Remarks.

With respect to item 4, Applicants note that an important feature of the present invention resides in the fact that the focal adjustment of the optical writing unit is performed based on different density levels of multiple pattern elements of a test pattern, and that those multiple pattern elements are uninterruptedly formed generally all along the main scanning direction of the image forming area. Accordingly, to further emphasize this point, Applicants by the foregoing Amendment have incorporated the limitations of dependent Claims 2 and 14 into each of the independent Claims of this application, i.e., Claims 1, 10 and 21, and canceled Claims 2 and 14, without prejudice. Applicants respectfully submit that as so amended Claims 1, 10 and 21, as well as the claims depending either directly or indirectly therefrom, are now in condition for allowance.

It is well established that in order to support a rejection based upon 35 USC 103(a) the Examiner is required to establish a *prima facie* case of the obviousness of the claims at issue to a person of ordinary skill in the art as of the time that the invention thereof was made. Further, it is also well settled that:

To establish a *prima facie* case of obviousness under Section 103, Title 35 United States Code (35 US §103), three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all of the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on Applicants' disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2D 1438 (Fed. Cir. 1991). Manual of Patent Examining Procedure §2142 (8th Edition), at page 2100-2121, *et seq.*

Applicants respectfully submit that the Examiner has not established the requisite *prima facie* case in support of his currently outstanding rejections.

Specifically, the Examiner in the currently outstanding Official Action relies upon the Inoue et al reference in combination with the Nakamura et al and Patten et al references as rendering independent Claims 1, 10 and 21 of this application unpatentable under 35 USC 103(a). Applicants respectfully submit that this combination of references is insufficient to establish a *prima facie* case in support of the unpatentability of Independent Claims 1, 10 and 21 of this application as hereinabove amended for the following reasons.

As discussed in the present specification, the Inoue et al reference supplied to the Examiner by Applicants (along with an English language Abstract, an English language summary and a partial English language translation thereof) discloses the formation of a first image with an optical writing unit held at a specified slant angle with respect to an image carrying member. Based upon the first image so formed, the operator determines the coordinates of the best focused element of the first image and enters those coordinates into a computer that in turn determines based upon a previously selected conversion subroutine the extent to which the optical writing unit should be raised or lowered to create a focused image. Then, the optical writing unit maintained at the same specified slant angle is moved to a second position parallel to its first position (i.e., upwardly or downwardly relative to its first position) and the computer is provided with sufficient information to determine this change in height relative to the image forming area. Thereafter, the optical writing unit forms a second image, and the operator determines the best focused element thereof and enters the coordinates of the same into the computer. Finally, the computer determines from the input information the amounts of adjustment of the left and right ends of the optical writing unit required for it to form a focused image on the image forming area.

According to the Examiner, the Inoue et al reference disclosure may be characterized as an image exposure device and focusing method including a pattern image forming process for forming a test pattern including multiple pattern elements (Fig. 5) corresponding to pixels arranged along a main scanning direction over an image forming area onto a surface of an image carrying member (10), and a position adjustment process for adjusting the position of the optical writing unit relative to the surface of the image carrying member based on the result of the test pattern. The Examiner admits, however, that Inoue does not base his position adjustment process on the density levels of the multiple pattern elements of his test patterns as formed on a print medium as herein claimed. Further, it is clear that Inoue et al in no way teaches, discloses or suggests that the test patterns that he creates extend uninterruptedly all along the main scanning direction in the image forming area as now specifically claimed in the independent claims of this application. Instead, both of the Inoue et al test patterns are formed along the same line extending across the image forming area in the sub-scanning direction.

In an attempt to overcome the admitted shortcomings of the Inoue et al reference, the Examiner cites the Nakamura et al reference also supplied to the Examiner by Applicants (along with an English language Abstract, an English language summary and a partial English language translation thereof) and the Patten et al reference which he alleges would suggest to one skilled in the art at the time that the present invention was made that the focus of the Inoue et al optical unit should be adjusted based upon a read density pattern. Applicants respectfully disagree.

The Nakamura et al reference is quite different from the Inoue et al reference. Specifically, in Nakamura et al the focal length between the optical writing unit and the image forming area is determined by an iterative procedure wherein starting from an arbitrarily set distance between the optical writing unit and the image forming area a series of image patterns are formed in the sub-scanning direction at different locations along the main scanning direction in the image forming area. In particular, these image patterns are formed by repeatedly turning on and off successively larger groups of LED's for each pass in the sub-scanning direction so as to form a plurality of patterns having successively larger spatial segment sizes in the sub-scanning direction from one another in the main scanning direction. The photosensitive nature of the image forming photosensitive material is chosen such that its threshold level is so low that the area of the black portion of the image increases as the photosensitive material is offset from the state of correct focus (i.e., the Nakamura et al reference deals with only binary images). Therefore, the lowest density of the developed photosensitive material is present in the areas closest to the correct focus and the density increases as the corresponding areas move farther away from the focal point. The location of the lowest density converges as the patterns move toward the one having the greatest frequency of the turning off and on of the LED's. Hence, the focal point is deemed to be where the image of the lowest density is obtained. However, as mentioned above, Nakamura et al is an iterative process. Thus, the foregoing procedure for the location of the focal point is repeated at different distances of the optical writing unit from the image forming area until such time as the true focal length is identified.

Accordingly, it will be understood that in addition to the fact that the Nakamura et al pattern images do not extend uninterruptedly all along the image forming area in the main scanning direction as now specifically claimed in independent Claims 1, 10 and 21, there is clearly no suggestion within the four corners of the prior art that one should adjust the focus of the optical writing unit in Inoue et al based upon a read density of a test pattern as taught by Nakamura et al. In other words, while it is true that Inoue et al contemplates that the operator should determine the focal point of each of the test patterns acquired by the optical writing unit at different heights from the image forming area, there is no teaching, disclosure or suggestion that this should be accomplished using the Nakamura et al approach. Indeed, since both Inoue et al and Nakamura et al are iterative processes for locating the true focal length between the image writing unit and the image forming area, Applicants respectfully submit that one of ordinary skill in the art would be lead away from combining two complex iterative processes to accomplish the same objective that each was designed to accomplish on its own.

Further, Applicants respectfully submit that the Patten reference does not change this result. In the Patten et al reference a test lithographic precursor is created wherein a parameter that changes a variable such as the focus point is varied through some range and a strip 30 of some predetermined pattern is imaged at each particular focus point. The plate is then processed so as to form a lithographic printing surface, reloaded and scanned for the purpose of insuring that the platesetter exposure heads are in appropriate adjustment. In this case, the nature of the precursor is such that a coating thereon will be removed during processing generally in direct relation to how far the particular strip 30 is from the strip position whereat the write beam is in good focus. Therefore, since the substrate under the coating layer of the precursor is generally reflective, the strip closest to the optimal focus location appears dark ("dense" in the words of the Patten et al patent) relative to those around it.

Accordingly, it will be understood that the Patten et al reference does not teach, disclose or suggest multiple pattern elements having different “density” as opposed to multiple pattern elements have different “reflectivity” (a totally different concept from that of the present invention as herein claimed). Further, the Patten reference does not teach, disclose or suggest multiple pattern elements that are uninterruptedly formed generally all along the main scanning direction in the image forming area (note that Patten et al does not show this in either Fig. 4 or 5A, and in describing the strips 30 at Column 1 of Page 4 only states that the strips 30 are of a “predetermined pattern”). Still further, and perhaps most importantly, nothing in either the Patten et al reference or the Inoue et al reference provides any suggestion for their combination in the manner suggested by the Examiner. In particular, Inoue et al determines a focal length by a complex mathematical calculation based upon results obtained from readings of single point taken in two parallel planes while Patten depends upon a chemical reaction of an irradiated coating of a lithographic precursor to locate an optimal focal length.

Applicants therefore respectfully submit that the Examiner in the currently outstanding Official Action has improperly built a mosaic of isolated elements of the prior art using the present application as a guide in an attempt to support his rejections under 35 USC 103 (a). Further, Applicants respectfully submit that the Examiner has failed to find all of the elements of the present claims in the prior art cited, and has failed to demonstrate that the art itself provides any suggestion for its successful combination in a manner that would lead to the present invention.

In view of the foregoing facts and argument, Applicants respectfully submit that the present application as hereinabove amended is now in condition for allowance. A decision so holding in response to this communication is respectfully requested.

Applicant also believes that additional fees beyond those submitted herewith are not required in connection with the consideration of this response to the currently outstanding Official Action. However, if for any reason a fee is required, a fee paid is inadequate or credit is owed for any excess fee paid, you are hereby authorized and requested to charge and/or credit Deposit Account No. 04-1105, as necessary, for the correct payment of all fees which may be due in connection with the filing and consideration of this communication.

Respectfully submitted,

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SIGNATURE OF PRACTITIONER

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